GROUNDWATER DATA SUBMITTAL GUIDANCE DOCUMENT (Version 2.1)

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I. Summary of Changes

This section highlights some of the changes between different versions of the Groundwater Data Submittal Guidance Document.

Changes between Version 1.0 (dated December 15, 1997) and this version, Version 2.0 of the Groundwater Data Submittal Guidance Document include:

- Changes to the data fields for Well Inventory Submittals:
  - X-COORD field is now referred to as LONGITUDE
  - Y-COORD field is now referred to as LATITUDE
  - COORD SYS field has been removed
  - DATUM field has been removed
  - XY METHOD is now referred to as LATITUDE LONGITUDE METHOD
  - MEAS ELEV field has been removed
  - ME METHOD field has been removed
  - DRILL DEPTH has been added
- Changes to the data fields for Water Quality Data Submittals:
  - AGENCY field has been divided into REPORTING AGENCY and COLLECTING AGENCY, both are required
  - LOW CALIB STD field has been added
  - HIGH CALIB STD field has been added
  - DILUTION field has been added
- Changes to the data fields for Water Level Elevation Submittals:
  - MEASUREMENT POINT ELEV field has been added
  - MEASUREMENT POINT ELEV METHOD field has been added
- The Arizona Department of Environmental Quality (ADEQ) Superfund Programs Section (SPS) will provide a geographic query to assist in the well inventory process.
- The optionality of data fields for each type of submittal (well inventory, groundwater quality, and groundwater elevation) have been divided into historical and current. Please see the Procedure Narrative and the Glossary for more information.
- Look-up tables have been made available for download from the ADEQ website.
- A glossary has been added.
- A question and answer section has been added.
- Geographic coordinates must be submitted in latitude and longitude using NAD 27 datum; UTM and State Plane will no longer be accepted.

Changes between Version 2.0 (dated June 1, 2000) and this version, Version 2.1 of the Groundwater Data Submittal Guidance Document include:

- Water level submittal format has been corrected.
- The laboratory ID field has been expanded from 12 to 15 spaces in the Water Quality Submittal.

C The analyte field has been expanded from 30 to 50 spaces in the Water Quality Submittal.

II. Introduction

The Superfund Programs Section (SPS) of the Arizona Department of Environmental Quality (ADEQ) receives a large volume of data in hard copy format which is difficult to manage and time consuming to enter into ADEQ's Groundwater Quality Database. In order to manage the large volume of groundwater data that the SPS receives, it has become imperative that these data are submitted electronically.

This guidance document describes the format and procedures for the submittal of groundwater data electronically. This cooperative effort between the SPS and the facilities for which the SPS has oversight responsibility will lead to more efficient and effective data management that will benefit all parties involved. The SPS expects to be able to analyze and synthesize data more readily, providing a higher level of service to our internal and external customers.

The SPS has identified three general types of data that would most readily be managed electronically: 1) well inventories, 2) groundwater elevations, and 3) groundwater quality data. While many facilities submit data electronically, the ranges of formats that we receive make it impossible to systematically assemble all of the data in a meaningful manner. To facilitate this effort, the SPS has worked with outside laboratories and environmental consultants to identify the minimum critical data necessary that will allow the Section to manage these data efficiently, and has attempted to develop a procedure that will be minimally burdensome on the facilities which submit data.

To ensure consistency, many of the fields of the requested format have a pre-defined list of acceptable entries. In the description of these fields, reference is made to the appropriate look-up table which contains the list of entries and codes. Look-up tables are downloadable from the ADEQ website. Please see Section VI for more information.

All data must be submitted to ADEQ in ASCII fixed width format. Data will be managed in the State of Arizona's Groundwater Quality Database (Database) and will become public records. As public records, these data will be available to all interested parties in both electronic and print media. We welcome your comments and suggestions regarding this effort.

Any questions or comments regarding this document should be directed to Julie Linn at linn.julie@ev.state.az.us or (602) 207-4172.

III. Procedure Narrative

A. Well Inventory Submittal

Identify all wells in the facility/organization groundwater monitoring network. The ADEQ can query the Database by township and range to provide the submitter with a comma-delimitted ASCII file of wells already in the Database.

All groundwater data will be related to an ADEQ well number, which will be assigned by ADEQ. The ADEQ well number will serve as the unique identifier, or primary key, to which all other data will be related. Wells with a single screened interval and will be assigned a single ADEQ well number. Specialty wells installed to collect depth specific samples from multiple screened intervals or sampling ports (e.g. Westbay or nested wells) will be assigned an ADEQ well number for each sampling port or interval. For those specialty wells, please list each sampling port or interval as a separate record. For wells with multiple screened intervals that were not designed for depth specific sampling (e.g. production and dewatering wells), please contact the ADEQ Project Manager to determine the most appropriate method for identifying the sampled interval.

The SPS anticipates the submitter will make every effort to compile information for each of the data fields requested. However, the SPS recognizes the varability of historical data, therefore, the requirements are relaxed for historical well inventory data submittals. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

Once ADEQ receives the well inventory from the facility/organization, ADEQ well numbers will be assigned. An electronic copy of the inventory which includes the ADEQ numbers will then be returned to the facility/organization. This procedure is required only one time so that ADEQ can establish entries in the database for each of your wells.

B. Water Quality Data Submittal

Once ADEQ well numbers have been established, it is possible to submit groundwater quality sampling results. Due to the variable nature of historical water quality data, the data requirements are relaxed for historical submittals. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

Items that require special attention are:

- Date fields must always be submitted as mm/dd/yyyy.
- Sample time is always mandatory and must be submitted in military format (e.g. 1302). Please contact the SPS Project Manager if the sample time is not available for historical data.
- All analytes will need to be reported with STORET codes. If you can not find a STORET code to match your analyte, please contact your SPS Project Manager with the parameter name and CAS number (if available).
- The sample result must be a numeric value only. If the sample result cannot be reported

numerically (i.e. <0.5 or ND), please leave this field blank and enter the appropriate code in the LAB_NOTATION field.

ADEQ is currently developing a quality control procedure to evaluate data accuracy. The requirement for high and low calibration standards are a result of this effort.

C. Water Elevation Data Submittal

Once ADEQ well numbers have been established, it is possible to submit groundwater quality sampling results. Due to the variable nature of historical data, the data requirements are relaxed for historical submittals. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

Items that require special attention are:

- Date fields must always be submitted as mm/dd/yyyy.
- Sample time is always mandatory and must be submitted in military format (e.g. 1302). Please contact the SPS Project Manager if the sample time is not available for historical data.

IV. Procedure Snapshot

1. Develop and submit well inventory to the SPS Project Manager.

2. ADEQ will return an electronic copy of the ADEQ well number(s) within approximately 45 days from the date of receipt. The six digit field (ADEQ WELL NUMBER) will contain a unique identifier that will need to be attached to all groundwater quality results and water level elevation data submitted for that sampling port/screened interval.

3. Following receipt of the unique identifiers, groundwater quality and water level elevation data may be submitted in accordance with the formats described in the groundwater quality table definitions and the groundwater elevation table definitions, found in section V of this document.

If you find that there are missing lookup codes in associated lookup tables for data you've collected, please contact Julie Linn at linn.julie@ev.state.az.us or (602) 207-4172. Arrangements will be made for updating ADEQ's database with new lookup codes reflecting your data submittal.

V. Table Definitions

A table for each type of submittal is included in this section. The Field Name column identifies the data elements that will be submitted; descriptive definitions can be found in the glossary. The Field Length column identifies the maximum length for each data element. The Historical and Current Submittals columns identify when each data element is required. The Look-up

Table or Format Requirements column identifies either the associated look-up table (in capital letters) or the necessary formatting requirements (e.g. date as mm/dd/yyyy).

A. Well Inventory Submittal

This is the format for all well inventory data submittals. In the case of multi-port wells, please list each sampling port as a separate record entry.

TABLE 1: WELL INVENTORY SUBMITTAL

Field Name	Field Length	Historical Submittal	Current Submittal	Look-up Table or Format Requirements
ADEQ WELL NUMBER	6	*	*	None
WELL NAME	25	Mandatory	Mandatory	None
ADWR NUMBER	9	Optional	Mandatory	55-xxxxxx
LONGITUDE	12	Mandatory	Mandatory	Submit as dddmmss.sss
LATITUDE	11	Mandatory	Mandatory	Submit as ddmmss.sss
LATITUDE LONGITUDE METHOD	1	Mandatory	Mandatory	LATITUDE LONGITUDE MEASUREMENT METHODS
TOP OF SCREENED INTERVAL	7	Optional	Mandatory	Left Justify, feet below ground surface
BOTTOM OF SCREENED INTERVAL	7	Optional	Mandatory	Left Justify, feet below ground surface
DRILL DEPTH	7	Optional	Mandatory	Left Justify, feet below ground surface

* ADEQ will assign this value, please leave this field blank.

In an ASCII fixed width format, the data will appear as follows:

Spaces 1-6	ADEQ WELL NUMBER
Spaces 7-31	WELL NAME
Spaces 32-40	ADWR NUMBER
Spaces 41-52	LONGITUDE
Spaces 53-63	LATITUDE
Space 64	LATITUDE LONGITUDE METHOD
Spaces 65-72	TOP OF SCREENED INTERVAL

Spaces 73-80	BOTTOM OF SCREENED INTERVAL
Spaces 81-88	TOTAL DRILLED DEPTH OF THE BOREHOLE

B. Water Quality Data Submittal

TABLE 2: WATER QUALITY DATA SUBMITTAL

Field Name	Field Length	Historical Submittal	Current Submittal	Look-up Table or Format Requirements
ADEQ WELL NUMBER	6	Mandatory	Mandatory	None
LAB NAME	5	Mandatory	Mandatory	LABS
REPORTING AGENCY	5	Mandatory	Mandatory	AGENCIES
COLLECTING AGENCY	5	Mandatory	Mandatory	AGENCIES
SAMPLE ID	60	Mandatory	Mandatory	None
SAMPLE TYPE	1	Mandatory	Mandatory	SAMPLE TYPES
LAB ID	15	Mandatory	Mandatory	None
SAMPLE DATE	10	Mandatory	Mandatory	Submit as mm/dd/yyyy
SAMPLE TIME	4	Mandatory*	Mandatory	Submit in military format (e.g. 1302)
EXTRACTION DATE	10	Optional	Mandatory	Submit as mm/dd/yyyy
ANALYSIS DATE	10	Optional	Mandatory	Submit as mm/dd/yyyy
METHOD	20	Mandatory	Mandatory	ACCEPTED LAB METHODS
ANALYTE	50	Mandatory	Mandatory	None
STORET	5	Mandatory	Mandatory	STORET CODES
DETECTION LIMIT	6	Mandatory	Mandatory	None
DET LIMIT UNITS	8	Mandatory	Mandatory	UNITS OF MEASURE
RESULTS	12	Mandatory**	Mandatory**	None
LAB NOTATION	3	Optional	Optional	LAB NOTATION
RESULT UNITS	8	Mandatory	Mandatory	UNITS OF MEASURE
LOW CALIB STD	7	Optional	Mandatory	None
HIGH CALIB STD	7	Optional	Mandatory	None
DILUTION	7	Optional	Mandatory	None

* Contact SPS project manager if the sample time is unknown.
** This value may be null if Lab Notation has appropriate value.

In an ASCII fixed width format, the data will appear as follows:

Spaces 1-6	ADEQ WELL NUMBER
Spaces 7-11	LAB NAME
Spaces 12-16	REPORTING AGENCY
Spaces 17-21	COLLECTING AGENCY
Spaces 22-81	SAMPLE ID
Spaces 82	SAMPLE TYPE
Spaces 83-97	LAB ID
Spaces 98-107	SAMPLE DATE
Spaces 108-111	SAMPLE TIME
Spaces 112-121	EXTRACTION DATE
Spaces 122-131	ANALYSIS DATE
Spaces 132-151	METHOD
Spaces 152-201	ANALYTE
Spaces 202-206	STORET
Spaces 207-212	DETECTION LIMIT
Spaces 213-220	DET LIMIT UNITS
Spaces 221-232	RESULTS
Spaces 233-235	LAB NOTATION
Spaces 236-243	RESULT UNITS
Spaces 244-250	LOW CALIB STD
Spaces 251-257	HIGH CALIB STD
Spaces 258-264	DILUTION

C. Water Level Elevation Submittal

TABLE 3: WATER LEVEL ELEVATION SUBMITTAL

Field Name	Field Length	Historical Submittal	Current Submittal	Look-up Table or Format Requirements
ADEQ WELL NUMBER	6	Mandatory	Mandatory	None
MEASUREMENT DATE	10	Mandatory	Mandatory	Submit as mm/dd/yyyy
MEASUREMENT TIME	4	Mandatory*	Mandatory	Submit in military format (e.g. 1302)
DEPTH TO WATER	7	Mandatory	Mandatory	Left justify, feet below ground surface
DEPTH TO WATER METHOD	1	Optional	Mandatory	WATER LEVEL MEASUREMENT METHODS
MEASUREMENT POINT ELEV	7	Optional	Mandatory	None
MEASUREMENT POINT ELEV METHOD	1	Optional	Mandatory	ELEVATION MEASURING METHOD

* Contact the SPS project manager if the measurement time is unknown.

In an ASCII fixed width format, the data will appear as follows:

Spaces 1-6	ADEQ WELL NUMBER
Spaces 7-16	MEASUREMENT DATE
Space 17-20	MEASUREMENT TIME
Spaces 21-27	DEPTH TO WATER
Spaces 28	DEPTH TO WATER METHOD
Spaces 29-35	MEASUREMENT POINT ELEV
Space 36	MEASUREMENT POINT ELEV METHOD

VI. Downloadable Look-up Tables

All look-up tables are contained in one zip file that can be downloaded from the ADEQ website. A readme.txt file, which includes the filename, description, and column definitions is included in the zip file. This zip file will be updated on a monthly basis.

Look-up Table Description	Filename
ACCEPTED LAB METHODS	ALM_LU.TXT
AGENCIES	AGENCY_LU.TXT
ELEVATION MEASURING METHODS	EMM_LU.TXT
LAB NOTATION	SLN_LU.TXT
LABS	LAB_LU.TXT
LATITUDE LONGITUDE MEASUREMENT METHODS	LLMM_LU.TXT
SAMPLE TYPES	ST_LU.TXT
STORET CODES	SC_LU.TXT
UNITS OF MEASURE	MU_LU.TXT
WATER LEVEL MEASUREMENT METHODS	WLMM_LU.TXT

VII. Glossary of Terms

Data field names are in all capital letters.

ADEQ WELL NUMBER
The unique identifier of the well in the Database. It is assigned by ADEQ and is mandatory for all data to be downloaded into the Database. This field should be left blank in a Well Inventory Submittal.

ADWR NUMBER
The Arizona Department of Water Resources registration number for the well. It must be provided in the format "55-xxxxxx".

ANALYSIS DATE
The date the sample was analyzed. Submit as mm/dd/yyyy.

ANALYTE
The name of the sample analyte.

BOTTOM OF SCREENED INTERVAL
The bottom of the screened interval, in feet below ground surface.

COLLECTING AGENCY
The name of the agency/consulting firm that collected the data. See the AGENCIES look-up table for a list of acceptable codes.

Current data
All water quality, water level, and/or well inventory data that is collected in the present or will be collected in the future (i.e. data collected on or after the date of this document).

Current data submittal
Current data compiled and submitted for entry into the Database.

DEPTH TO WATER
The depth to water, in feet below ground surface.

DEPTH TO WATER METHOD
The method used to calculate the depth to water. See WATER LEVEL MEASUREMENT METHODS look-up table for a list of acceptable codes.

DETECTION LIMIT
The detection limit of the analyte. The DET LIMIT UNITS field must also be included.

DET LIMIT UNITS
The units of the detection limit. This must be included with the DETECTION LIMIT field.

DILUTION
The dilution factor for the analysis (if any). If no dilution was applied, please enter 0. The whole number dilution factor from the laboratory report should be entered. Please contact your lab for further details regarding this field.

DRILL DEPTH
The total drilled depth of the borehole, in feet below ground surface. This may or may not be the same as the total depth of the well.

EXTRACTION DATE
The date the sample was extracted, if applicable. Submit as mm/dd/yyyy. If this is not applicable to the analysis, please leave this null.

HIGH CALIB STD
The concentration of the highest standard used in deriving a calibration curve. This value is necessary to assist the SPS in performing QA/QC checks on the data submitted to the Database. Please contact your laboratory for further details regarding this field.

Historical data
The compilation of water quality, water level and/or well inventory data collected in the past.

Historical Data Submittal
Data collected in the past that will be compiled and submitted for entry into the Database.

LAB NAME
The name of the laboratory conducting the analysis. See the LABS look-up table for a list of acceptable codes.

LAB ID
The sample identifier assigned by the laboratory.

LAB NOTATION
The laboratory notation of a result value. This may include such look-up codes as ND, the code for "not detected"; Q, the code for "holding time exceeded"; or M, the code for "duplicate analysis outside of control limits". See the LAB NOTATION look-up table for a list of acceptable codes.

LATITUDE
The latitude of the well using NAD 27 datum. It must be provided in the format ddmmss.ssss.

LATITUDE LONGITUDE METHOD
The method used to determine the latitude and longitude location of the well. See the LATITUDE LONGITUDE MEASUREMENT METHODS look-up table for a list of acceptable codes.

LONGITUDE
The longitude of the well using NAD 27 datum. It must be provided in the format dddmmss.ssss.

LOW CALIB STD
The concentration of the lowest standard used in deriving a calibration curve. This value is necessary to assist the SPS in performing QA/QC checks on the data submitted to the Database. Please contact your laboratory for further details regarding this field.

MEASUREMENT DATE
The date of the water level measurement. Submit as mm/dd/yyyy.

MEASUREMENT POINT ELEV
The measurement point elevation of the well (datum), in feet above mean sea level.

MEASUREMENT POINT ELEV METHOD
The method used to determine the measurement point elevation of the well. See the ELEVATION MEASURING METHODS look-up table for a list of the codes used to describe acceptable entries.

MEASUREMENT TIME
The time of the water level measurement. Submit in military time (i.e.1350).

METHOD
The EPA/ADHS method number. See the ACCEPTED LAB METHODS look-up table for a list of acceptable codes.

REPORTING AGENCY
The name of the agency/consulting firm submitting the data to ADEQ. See the AGENCIES look-up table for a list of acceptable codes.

RESULTS
The sample result. This must be a numeric value only. If the sample result cannot be reported numerically (i.e. <0.5 or ND), please leave this field blank and enter the appropriate code in the LAB_NOTATION field.

SAMPLE DATE
The date the sample was collected. Submit as mm/dd/yyyy.

SAMPLE TIME
The time the sample was collected. Submit in military time (i.e. 1325).

SAMPLE ID
The sample identifier given by the sampler.

SAMPLE TYPE
The type of sample collected. See the SAMPLE TYPES look-up table for a list of acceptable codes.

STORET
The STORET code that matches the analyte and the method. See the STORET CODES look-up table for a list of the codes used to describe acceptable entries. If you do not find a STORET code that matches your analysis, please contact your SPS project manager with a complete description of the analyte including the media and the CAS number, if available (e.g. 1,4-dichlorobenzene, total in water, GC-MS, CAS number 123-45-6). The ADEQ will search the EPA STORET codes and notify you of possible matches. When a match is made, ADEQ will bring that STORET code into the ADEQ Database. If a match can not be made, the ADEQ will

pursue obtaining an EPA STORET code for your analyte.

TOP OF SCREENED INTERVAL
The top of the screened interval, in feet below ground surface.

UNITS
The units in which the results are reported. See the UNITS OF MEASURE look-up table for a list of acceptable codes.

WELL NAME
The facility or common name of the well. For example, MW-1. It may be helpful to include some description of the site or facility (i.e. MW-1, Facility XYZ or MW-6, The Big WQARF Site).

VIII. Questions and Answers

Q: Our office uses Microsoft Access. How do I create an ASCII fixed width text file?

A: 1) In the database window, click the name of the table or query you want to export, and then in the **File** menu, click **Save As/Export**.
2) In the **Save As** dialog box, click **To An External File Or Database**, and then click **OK**.
3) In the **Save As Type** box, click **Text Files**.
4) Click the arrow to the right of the **Save In** box and select the drive or folder to export to.
5) In the **File Name** box, enter the file name, and then click **Export**. Microsoft Access starts the Export Text Wizard. If you saved a specification when exporting this table or query previously and want to load it, click **Advanced**, click **Specs**, and then double-click the specification.

Note: At any point before clicking Finish, you can click the **Advanced** button to specify the text format to save as (Windows (ANSI) or DOS OS/2 (PC-8)); date, time, and number formats; and which columns to export.

6) Choose to create a fixed-width file, and then click **Next**.
7) Follow the directions in the remaining dialog boxes.

Note: When the wizard is finished, it automatically saves a specification of the choices you made to the default name: *Filename*_ExportSpec. To specify the name yourself, click **Advanced**, click **Specs**, and then click **Save As**. You can load this specification the next time you export data from the same table or query so you don't have to make the same choices again.

Q: What if I find incorrect information for a well that exists in the Database?

A: Please contact the SPS Project Manager with the ADEQ Well Number and the correct information. They will convey this to the appropriate person to have the corrections made in the Database.

Q: Is there any case sensitivity in the Database?

A: There is code in the Database that will set everything to upper case. You can submit it in either upper or lower case.

Q: Do I need to include the leading zeros on STORET CODE and ADEQ WELL NUMBER fields?

A: Yes, ADEQ needs the leading zeros on these fields. For example, a STORET code 00010 must be submitted as 00010, not "10". Therefore, some data may need to be stored as "text" data type.

Q: Do header rows need to be exported with the dataset?

A: No, they do not. By following the fixed width format, ADEQ knows what to expect in each column.

Q: Do I include data from trip blanks, field blanks, or equipment rinsate blanks?

A: No, if a sample is not directly associated with a well, we cannot accept it.

Q: Do I include field measured water quality parameters (i.e. pH, specific conductance, temperature etc.)?

A: Yes, please include this data. Please use the sample type code "F" and the appropriate STORET codes for the parameter.

Q: What media should I submit data in?

A: CD, floppy disk, or electronic (e-mail) transmittals are all acceptable.

Q: How often should I submit data?

A: Sampling data should be provided to the SPS Project Manager at the same frequency the data is collected.

Q: What if I discover an error after the data has been submitted and downloaded into the Database?

A: Contact your SPS Project Manager and inform them of the error.

Q: What if there is not a look-up code for something I need (e.g. my agency)?

A: Send an e-mail to the SPS Project Manager giving a detailed description of what needs to be added. The ADEQ will work internally to make the addition, and e-mail back to you the appropriate look-up code.

Q: What if the analyte name exceeds the 30 character field length?
A: It is acceptable to truncate the analyte name.

Q: What if my laboratory method of analysis does not appear in the "ACCEPTABLE LABORATORY METHODS" table?
A: Send an e-mail to the SPS Project Manager giving the method, the laboratory, and a description of the method. ADEQ will research it, add the laboratory method if appropriate, and inform you of the outcome.

Q: Do I have to use the exact parameter names included in the STORET CODE look-up tables? What if my parameter name and the STORET CODE parameter name do not match exactly?
A: ADEQ will key all chemicals by STORET code. Therefore, we never actually load the analyte name. Rather, we use it in case of confusion over a STORET code, to verify the STORET code chosen is correct.

Q: If we do our own data validation, should our codes supercede those from the laboratory in the LAB NOTATION field?
A: In general, you should report the data to the SPS exactly as the laboratory reports it to you. However, there are exceptions to this. If you have any questions or concerns, contact the SPS Project Manager.

Q: What if I am having trouble matching my analytes with a STORET code in the STORET CODE look-up table?
A: Please e-mail a list of your analytes including a detailed description and the CAS number, if available. ADEQ will attempt to match the analyte to a STORET code in either the ADEQ or EPA STORET code list. ADEQ will e-mail back to you the options you have to choose from. If none of them match, the STORET code will need to be added.

Q: What if the STORET CODE look-up table has an analyte that matches my analyte, but the units that do not match the units of my results?
A: If there is a STORET code where the analyte and the units both match, please use that STORET code. Units is one of the fields you will submit in the water quality data submittal. Therefore, if the analyte name matches but the units in the STORET code don't match, it is acceptable to use that STORET code.

Q: Is there any justification I should use?
A: Please left justify all fields.